

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An assembly device ~~for compliantly positioning a control~~
object, comprising:
 - a frame supporting a robotic arm;
 - ~~a moveable robotic arm which projects from the frame; and~~
 - a locking arm ~~moveable between a locked position and an unlocked position, the~~
~~locking arm having an engagement portion biased toward an alignment~~
~~position relative to the frame so that the locking arm is normally in a locked~~
~~position~~ affixed to the robotic arm, the locking arm maintained in a locked
position by an engagement feature communicating with and constrained by a
corresponding confinement feature, in which the engagement feature is
affixed to a selected one of the frame and locking arm, and the confinement
feature is provided by the remaining one of the frame and locking arm.;
 - ~~an end effector attached to the robotic arm and configured to support the control~~
~~object; and~~
 - ~~a plunger coupled to the locking arm and configured to engage an alignment~~
~~feature associated with a desired placement of the control object, wherein the~~
~~engagement portion maintains the end effector in a substantially~~
~~noncompliant condition when the locking arm is in the locked position and~~
~~wherein pressing engagement of the plunger against the alignment feature~~

~~causes the locking arm to move to the unlocked position to introduce compliance into the end effector to allow freedom of movement of the end effector relative to the control object.~~

2. (currently amended) The assembly device of claim 1 further comprising an end effector supported by the robotic arm providing a movable plunger which contactingly engages the locking arm, wherein the movable plunger produces displacement of the engagement feature from its corresponding confinement feature to place the locking arm in an unlocked position causing an introduction of compliance in the end effector when the movable plunger contactingly aligns with an alignment feature associated with a desired displacement of the end effector, and wherein the engagement portion of the locking arm comprises a first end of the locking arm, wherein the locking arm comprises a first and second end with a medial portion disposed therebetween, in which the further comprises a medial portion and a second end, wherein the medial portion of the locking arm is pivotally affixed to the robotic arm, and wherein the first end of the locking arm is configured to engage the frame in a ball and socket arrangement when the locking arm is in the locked position the engagement feature is a socket ball, and the corresponding confinement feature is a socket sized to accommodate the socket ball.

3. (withdrawn and currently amended) The assembly device of claim 1 wherein the engagement ~~feature portion~~ of the locking arm comprises a first end of the locking arm, wherein the locking arm further comprises a medial portion and a second end, wherein the medial portion of the locking arm is affixed for linear movement relative to the robotic arm,

and wherein the first end of the locking arm is configured to engage the frame in a ball and socket arrangement when the locking arm is in the locked position.

4. (original) The assembly device of claim 1 further comprising a controller, wherein premature movement of the locking arm to the unlocked position causes the controller to interrupt placement of the control object.

5. (currently amended) The assembly device of claim 1 further comprising an end effector supporting a control object, and in which the control object comprises a first object, wherein the alignment feature comprises a wall of an aperture of the work object, and wherein the first end of the plunger comprises a conical tip to align with the aperture for transfer of the first object from the end effector to the work object when the locking arm is in the unlocked position.

6. (currently amended) The assembly device of claim 1 further comprising an x slider attached to the frame that allows movement of the end effector in an x direction when the locking arm is in the unlocked position, wherein the locking arm substantially restricts movement of the end effector in the x direction when the locking arm is in the locked position.

7. (original) The assembly device of claim 6 further comprising a y slider attached to the frame that allows movement of the end effector in a y direction normal to the x direction when the locking arm is in the unlocked position, wherein the locking arm

substantially restricts movement of the end effector in the y direction when the locking arm is in the locked position.

8. (currently amended) The assembly device of claim ~~4~~ 2 further comprising an unload arm to advance ~~the~~ a control object secured by the end effector when the plunger is pressingly engaged against the alignment feature.

9. (currently amended) The assembly device of claim ~~4~~ 8 wherein the control object comprises a disc stack ~~which is placed onto a spindle motor hub.~~

10. (currently amended) The assembly device of claim ~~8~~ wherein the alignment feature comprises a wall of an aperture which extends into a ~~second control~~ work object.

11. (currently amended) A compliance mechanism ~~for positioning a control object,~~ comprising:

a frame supporting a robotic arm that includes a locking arm pivotally attached to the robotic arm for movement of the locking arm between a locked and an unlocked position;

~~a robotic arm which extends from the frame;~~

~~a locking arm attached to the robotic arm for movement between a locked and an unlocked position, wherein the locking arm is biased in the locked position;~~

a socket affixed to a selected one of the frame and the locking arm;

a socket ball affixed to the remaining one of the frame and the locking arm; and

a plunger provided by an end effector which extends from attached to the robotic arm to engage the control object; and
a plunger extending adjacent the end effector coupled to , the plunger contactingly engaging
the locking arm and configured to align with an alignment feature associated with a desired placement of the ~~control object~~ end effector, wherein the socket and the socket ball cooperate to maintain ~~the end effector in a reference position with respect to a reference plane when~~ the locking arm is in the locked position, ~~and wherein the locking arm moves to the unlocked position when the first end of~~ until the plunger engages the alignment feature, causing the introduction of compliance in the end effector ~~along the reference plane~~ sufficient to facilitate freedom of movement of the ~~control object~~ end effector.

12. (original) The compliance mechanism of claim 11 further comprising a biasing member which biases the locking arm in the locked position.

13. (original) The compliance mechanism of claim 11 wherein the locking arm pivots between the locked and unlocked position.

14. (withdrawn) The compliance mechanism of claim 11 wherein the locking arm moves in a linear direction between the locked and unlocked position.

15. (currently amended) The compliance mechanism of claim 11 wherein the end effector supports a control object, and in which the alignment feature comprises a wall of an

aperture and wherein the plunger comprises a conical tip which is moveable along the wall of the aperture to align the control object when the locking arm is in the unlocked position.

16. (original) The compliance mechanism of claim 11 further comprising an x slider attached to the frame that allows movement of the end effector in an x direction when the locking arm is in the unlocked position, wherein the locking arm substantially restricts movement of the end effector in the x direction when the locking arm is in the locked position.

17. (original) The compliance mechanism of claim 16 further comprising a y slider attached to the frame that allows movement of the end effector in a y direction normal to the x direction when the locking arm is in the unlocked position, wherein the locking arm substantially restricts movement of the end effector in the y direction when the locking arm is in the locked position.

18. (currently amended) The compliance mechanism of claim ~~10~~ 11 wherein the end effector supports a control object, and in which the control object is a disc/spacer stack ~~which is aligned with a spindle motor hub.~~

19. (currently amended) The compliance mechanism of claim ~~10~~ 11 further comprising a controller to control the operation of the compliance mechanism.

20. (currently amended) The compliance mechanism of claim ~~10~~ 11 further comprising a socket sensor to sense when the socket ball is displaced from the socket.